

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms. Doran (reg. 64,883) on 7/30/2010.

The application has been amended as follows:

In the specification:

In page 7, lines 1-12:

As used herein, the terms "block diagram environment" and "graphical modeling environment" refer to a graphical application where a model is translated into executable instructions. Examples of suitable diagramming applications include, but are not limited to MATLAB, version 6.1 with ~~Simulink~~ SIMULINK, version 5.0 from the MathWorks, ~~LabVIEW~~ LABVIEW, ~~DasyLab~~ DASYLAB and ~~DiaDem~~ DIADEM from National Instruments Corporation, VEE from Agilent, SoftWIRE from Measurement Computing, VisSim from Visual Solutions, ~~SystemVIEW~~ SYSTEMVIEW from Elanix, WiT from Coreco, Vision Program Manager from PPT Vision, Khoros from Khorol Research, and numerous others. The memory 4 may comprise any suitable installation medium, e.g., a CD-ROM, floppy disks, or tape device; a computer system memory or random access memory such as DRAM, SRAM, EDO RAM, Rambus RAM, etc.; or a non-volatile memory such as a magnetic media, e.g., a hard drive, or optical storage. The memory may comprise other types of memory as well, or combinations thereof.

In page 7, lines 20-22:

The diagramming application 6 of an illustrative embodiment of the invention includes a number of generic components. Although the discussion contained herein focuses on ~~Simulink~~ SIMULINK, version 5.0 (Release 13) from The MathWorks, Inc. of Natick MA, those skilled in the art will recognize that the invention is applicable to other software applications. The

In page 8, lines 1-7:

Art Unit: 2193

following the layout of the block diagram as provided by the user. The executable entities are compiled and executed on an electronic device, such as a computer, to implement the functionality specified by the model. Typically, the code generation preserves a model hierarchy in a call graph of the generated code. For instance, each subsystem of a model in a block diagram environment can map to a user specified function and the generated code.

~~Real-Time Workshop~~ REAL-TIME WORKSHOP from the MathWorks, Inc. of Natick, Massachusetts is an example of a suitable execution engine for generating code.

In page 12 lines 25-27:

To perform a linearization in step 30, ~~Simulink~~ SIMULINK uses the block method execution lists in a prescribed fashion to produce a linear state space representation of the dynamic system described by the block diagram.

In page 22, lines 28-37:

According to another embodiment of the invention, a user can request a code preview by selecting a portion of a graphical model. For example, Figure 12 illustrates a graphical user interface displaying a block diagram representing a function *f*, for which a user can request a code preview according to an illustrative embodiment of the invention. In Figure 12, the function *f* is represented by a ~~Stateflow~~ STATEFLOW chart 1210, which specifies a for-loop, though one skilled in the art will recognize that any suitable graphical modeling environment may be used. A ~~Stateflow~~ STATEFLOW chart is a graphical representation of a finite state machine where states and transitions form the basic building blocks of the system. A ~~Stateflow~~ STATEFLOW chart may be represented within a block diagram model as a block, as shown in Figure 12. ~~Stateflow~~ STATEFLOW is available from The MathWorks, Inc., of Natick, MA.

In the claims:

1. (currently amended) In a graphical modeling environment, a method comprising:

receiving a user request to define a parameter or a setting of a block in a simulatable block diagram model via a first graphical user interface;

Art Unit: 2193

determining how defining the parameter or the setting of the block in the simulatable block diagram model according to the user request will alter code corresponding to the block, without generating entire code for the simulatable block diagram model, the entire code for the simulatable block diagram model being executable to simulate the simulatable block diagram model;

automatically generating in real-time based on the determining, using a predictor mechanism, a preview of code representative of the code corresponding to the block prior to generating, using an execution engine, the entire code for the simulatable block diagram model ~~based on the determining~~, wherein:

the preview of the code predicting predicts and emulating emulates the code corresponding to the block as if generated by the execution engine, the preview of the code and the code corresponding to the block are in a different coding format; and

automatically displaying in real-time the preview of the code on a preview graphical user interface wherein the user can refine the preview of the code by altering the parameter or the setting for the block on the preview graphical user interface.

2-3. (Canceled)

6. (currently amended) The method of claim 1, wherein generating the preview of the code comprises:

generating an estimation of the code corresponding to the block using the predictor mechanism.

Art Unit: 2193

10. (canceled)

11. (canceled)

12. (currently amended) The method of claim [[11]] 1, further comprising:

generating code representing the altered parameter or the altered setting; and

displaying the code representing the altered parameter or the altered setting on the preview graphical user interface.

14. (currently amended) The method of claim 12, further comprising:

generating code representing the altered second parameter or the altered second setting; and

displaying the code representing the altered second parameter or the altered second setting on the preview graphical user interface.

17. (currently amended) The method of claim 16, wherein the dialog box includes a code preview field for displaying the preview of the code.

18. (canceled).

19. (currently amended) In a graphical modeling environment, a method comprising:

determining how defining a parameter or a setting of a block in a simulatable block diagram model via a first graphical user interface according to a user request will alter code corresponding to the block, without an execution engine generating entire

Art Unit: 2193

code for the simulatable block diagram model, the entire code for the simulatable block diagram model being executable to simulate the simulatable block diagram model;

based on the determining, automatically updating a preview of code representative of the code corresponding to the block in the simulatable block diagram model in response to a user altering the parameter or the setting of the block, wherein the preview of code and the code corresponding to the block are in a different coding format, the updating comprising:

automatically generating in real-time based on the determining, the preview of code using a predictor mechanism, prior to generating, using the execution engine, the code entire block diagram model, the preview of code predicting and emulating the code corresponding to the block as if generated by the execution engine; and

automatically displaying in real-time the updated preview of the code on a preview graphical user interface wherein the user can refine the preview of the code by altering the parameter or the setting for the block on the preview graphical user interface.

20 -21 (Canceled).

Art Unit: 2193

23. (currently amended) A computer-readable storage medium for use with an electronic device having a processor, the medium storing instructions executable by the processor of the electronic device, the medium storing:

one or more instructions for receiving a user request to define a parameter or a setting of a block in a simulatable block diagram model via a first graphical user interface;

one or more instructions for determining how defining the parameter or the setting of the block in the simulatable block diagram model according to the user request will alter code corresponding to the block, without generating entire code for the simulatable block diagram model, the entire code for the simulatable block diagram model being executable to simulate the simulatable block diagram model;

one or more instructions for automatically generating in real-time, using a predictor mechanism, based on the determining, a preview of code representative of the code corresponding to the block in the simulatable block diagram model in response to the user request, the generating the preview of the code occurring prior to generating the entire code for the simulatable block diagram model using an execution engine, the preview of the code predicting and emulating the code corresponding to the block as if generated by the execution engine, where the preview of the code is presented in a coding format that differs from a coding format of the code corresponding to the block; and

one or more instructions for automatically displaying in real-time the preview of the code on a preview graphical user interface wherein the user can refine the preview

Art Unit: 2193

of the code by altering the parameter or the setting for the block on the preview graphical user interface.

24. (currently amended) A computer-readable storage medium for use with an electronic device having a processor, the medium storing instructions executable by the processor of the electronic device, the medium storing:

one or more instructions for determining how defining a parameter or a setting of a block in a simulatable block diagram model via a first graphical user interface according to a user request will alter code corresponding to the block, without an execution engine generating entire code for the simulatable block diagram model, the entire code for the simulatable block diagram model being executable to simulate the simulatable block diagram model;

one or more instructions for automatically updating, based on the determining, a preview of code representative of the code corresponding to the block in the simulatable block diagram model in response to a user altering the parameter or the setting of the block, wherein the preview of code and the code corresponding to the block are in a different coding format, the one or more instructions for updating comprising:

one or more instructions for automatically generating in real-time based on the determining, the preview of code using a predictor mechanism, the preview of the code prior to generating, using the execution engine, the entire code for the simulatable block diagram model, the preview of code predicting and emulating the code corresponding to the block as if generated by the execution engine; and

Art Unit: 2193

one or more instructions for automatically displaying in real-time the updated code preview of the code on a preview graphical user interface wherein the user can refine the code preview by altering the parameter or the setting for the block on the preview graphical user interface.

25. (currently amended) A system for generating and displaying a graphical programming application, comprising:

user-operable input means for inputting data to the graphical programming application;

a display device for displaying a simulatable block diagram model via a first graphical user interface; and

an electronic device including memory for storing computer program instructions and data, and a processor for executing the stored computer program instructions, the computer program instructions including:

instructions for determining how defining a property of a block in the simulatable block diagram model according to a user request will alter code corresponding to the block, without generating entire code for the simulatable block diagram model, the entire code for the simulatable block diagram model being executable to simulate the simulatable block diagram model; and

instructions for providing, based on the determining, a code preview to a user on the display device wherein the user can refine the code preview by altering the property of the block on the preview graphical user interface, wherein:

Art Unit: 2193

the code preview automatically displaying displays in real-time a preview of code representative of the code corresponding to the block in the simulatable block diagram model after the user defines the property of the block using the user-operable input means,

the preview of code and the code corresponding to the block are in a different coding format, [[and]]

the preview of the code ~~being~~ is automatically created in real-time based on the determining by a predictor mechanism which emulates how the code corresponding to the block appears when the code corresponding to the block is generated by an execution engine, and

the preview of the code is created prior to generating, using the execution engine, the entire code for the simulatable block diagram model.

26. (canceled)

27. (currently amended) The system of claim [[26]] 25, wherein the preview graphical user interface includes a field for displaying the code preview.

28. (currently amended) A system for generating and displaying a graphical programming application, comprising:

user-operable input means for inputting data to the graphical programming application;

Art Unit: 2193

a display device for displaying a simulatable block diagram model on a first graphical user interface; and

an electronic device including memory for storing computer program instructions and data, and a processor for executing the stored computer program instructions, the computer program instructions including instructions for:

receiving a first datum altering a setting of a first portion of the simulatable block diagram model₁;

determining how altering the setting of the first portion of the simulatable block diagram model will alter code corresponding to the first portion in ₂ the simulatable block diagram model, without an execution engine generating ₃ the entire code for the simulatable block diagram model, the entire code for the simulatable block diagram model being executable to simulate the simulatable block diagram model;

in response to the first datum, automatically generating in real-time, based on the determining, a preview of code representative of the code corresponding to the first portion of the simulatable block diagram model using a predictor mechanism, wherein the preview of the code and the code corresponding to the first portion are in a different coding format, the preview of the code predicting and emulating the code ₄ corresponding to the first portion as if generated by the execution engine prior to generation of the entire code for the simulatable block diagram model by the execution engine,

Art Unit: 2193

~~receiving a second datum altering a setting of a second portion of the simulatable block diagram model, and~~

~~in response to the second datum, automatically updating a portion of the preview of the code, the updated portion of the preview of the code being presented in a format that differs from an un-updated portion of the preview of the code; and~~

automatically displaying in real-time the preview of the code on a preview graphical user interface wherein the user can refine the preview of the code by altering the setting for the first portion on the preview graphical user interface.

29. (canceled)

30. (currently amended) The system of claim [[29]] 28, wherein the preview graphical user interface includes a field for displaying the ~~updated~~ preview of the code.

Examiner's Statement of Reason(s) for Allowance

2. Claims 1, 4-6, 8, 9, 12-14, 16, 17, 19, 22-25, 27, 28, and 30 (renumbered as 1-19) are allowed.

3. The Terminal Disclaimer filed on 7/30/2010 has been accepted.

4. The following is an examiner's statement of reason(s) for allowance:

The prior arts of record, taken alone or in combination, fail to teach or fairly suggest at least: determining how defining the parameter or the setting of the block in the simulatable block diagram model according to the user request will alter code corresponding to the block...the

Art Unit: 2193

preview of the code predicts and emulates the code corresponding to the block as if generated by the execution engine, the preview of the code and the code corresponding to the block are in a different coding format; and automatically displaying in real-time the preview of the code on a preview graphical user interface wherein the user can refine the preview of the code by altering the parameter or the setting for the block on the preview graphical user interface as recited in the independent claims 1, 19, 23-25, and 28.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to INSUN KANG whose telephone number is (571)272-3724. The examiner can normally be reached on M-R 7:30-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Lewis A. Bullock, Jr. can be reached on 571-272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2193

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Insun Kang
/Insun Kang/
Primary Examiner, Art Unit 2193